NWS CHANGE FORM
PART A - COVER SHEET

1A. DATE SUBMITTED
October 3, 2003

1B. DATE RECEIVED

This form is in three parts. Submitters must complete unshaded blocks in Part A and as much of Part B and C as possible. If there is no specific required change date, enter 60 days from date submitted. Address questions to NWS Change Management at (301) 713-1373. Submit change requests to the NWSRC mailbox (External: NWSRC@noaa.gov).

2. ORIGINATOR OFFICE	3. SUBMITTING AUTHORITY	4. COGNIZANT TECHNICAL INDIVIDUAL	5. ORIGINATOR TRACKING NUMBER
Office of Science and Technology, Systems Engineering Center (OST32)	Name:Henry Robinson Routing Code: OS12	Name: Dave Niver Routing Code: W/OST32 Phone: 301-713-9001 x168 Name: James Heil Routing Code: OS11 Phone: 301-713-0463 x172	

6. SYSTEMS AFFECTED BY CHANGE

☐ DATA PRODUCTS ☐ OTHER (specify)

☐ ASOS X AWIPS ☐ NEXRAD ☐ RRS ☐ CRS

7. WSH TRACKING NUMBER

7A. REV LEVEL

8. TITLE OF CHANGE

Add New GFS Grids to SBN/NOAAPORT

9. OPERATIONAL REQUIREMENTS DOCUMENT IDENTIFIER

10. CATEGORY OF CHANGE

X☐ RC ☐ PECP ☐ ECP

11. CLASS OF CHANGE

☐ CLASS I ☐ CLASS II

12. TYPE OF CHANGE

☐ DOCUMENTATION ONLY ☐ HARDWARE X SOFTWARE X DATA

13. SITES AFFECTED All sites

14. STATEMENT OF REQUIREMENT, PROBLEM, OR DEFICIENCY OF EXISTING SYSTEM

In May 2003, the IFPS Science Steering Team (ISST) recommended that additional NCEP Global Forecast System (GFS) model grids be provided to AWIPS. These new grids will supplement the existing GFS SBN/NOAAPORT suite (formerly referred to as the Aviation model). The new grid set, at 80km resolution, will consist of additional levels and forecast times for five already-sent parameters, as well as two new parameters. These new grids will meet the requirement for an improved grid set for IFPS's "Smart Initialization." Therefore, OS&T and OS jointly submit this RC on behalf of the ISST.

The five already-sent parameters are:

1. Geopotential Height
2. Temperature
3. u wind component
4. v wind component
5. Relative Humidity

These parameters are already provided by NCEP (and on the SBN) at approximately 10 levels, from model initialization time out to 120 hours forecast time, at six hour increments. This RC calls for a total of 36 levels, and an extension of forecast times, from 120 to 240 hours for the 00Z and 12Z model runs, and from 120 to 168 hours for the 06Z and 18Z model runs, as described below.

The two new parameters are:

1. CAPE
2. CIN

These parameters are currently provided by NCEP for GFS grid CONUS213.

The AWIPS Build to which these new grids will be allocated is OB2.2; the full set of GFS grids will be allocated no later than AWIPS OB4.

15. KNOWN OR PROPOSED SOLUTION

The additional GFS grid data should be added to the SBN and made available to AWIPS sites. The new GFS grids should follow the same general dissemination pathway as the existing GFS grids:

NCEP ➜ NWS TG ➜ AWIPS NCF ➜ SBN(TG chan) ➜ AWIPS & NOAAPORT Users.

Specifications for new GFS grids:

1. Grid 211 (CONUS)

2. PARAMETERS
   A. There are five already-sent parameters:
      a. Z (geopotential height)
      b. T (temperature)
      c. u (east/west wind component)
      d. v (north/south wind component)
      e. RH (relative humidity)
   B. There are two new parameters:
      a. CAPE (Convective Available Potential Energy)
      b. CIN (Convective Inhibition)

3. LEVELS
   A. For the five already-sent parameters:
    36 levels:
      surface
      6 BL (sigma layers): 0-30, 30-60, 60-90, 90-120, 120-150, and 150-180 mb above the surface.
      21 levels in 25 mb steps: 1000, 975, 950, 925, 900, 875, 850, 825, 800, 775, 750,
                                725, 700, 675, 650, 625, 600, 575, 550, 525, and 500 mb.
      8 levels in 50 mb steps: 450, 400, 350, 300, 250, 200, 150, and 100 mb.

        Note that some parameters are already provided to AWIPS, at some of these levels.

   B. For the two new parameters
    2 levels:
      surface
      1 BL (sigma layer): 0-180 mb AGL (above the surface)

4. FORECAST INTERVALS
     AWIPS currently gets AVN/GFS grids out to 120 hours (at six hour intervals).
     Sustaining this granularity out to 240 hours (for the 00Z and 12Z model runs)
     gives 41 total "valid times":
     00, 06, 12, 18, 24, 30, 36, 42, 48, 54, 60, 66, 72, 78, 84, 90, 96,
     102, 108, 114, 120, 126, 132, 138, 144, 150, 156, 162, 168, 174, 180,
     186, 192, 198, 204, 210, 216, 222, 228, 234, and 240
     Units are hours from model initialization time.

5. The GFS model is distributed four times daily, corresponding to the following
    initializations: 00, 06, 12 & 18 UTC.

6. An increase of 54.8 Mbytes/day is expected on the SBN/TG channel, given:
      a. Size of each new 211 (CONUS) grid is 7349 bytes (based on mean size of its 5225 grids);
      b. For the five already-sent parameters, an increase of 51.4 Mbytes/day is expected, since:
         i. Of the 36 total number of levels, 11 are already provided, so 25 new levels; and
         ii. 20 new forecast intervals at 00 & 12 UTC, 8 new forecast intervals at 06 & 18 UTC.
      c. For the two new parameters, a data volume of 3.4 Mbytes/day is expected, since:
         i. 2 levels; and
         ii. 29 forecast intervals at 00, 06, 12, & 18 UTC.

The NWS TG shall provide these products in very-near-real time to the AWIPS NCF for uplink on the SBN's TG channel.

16. ALTERNATE SOLUTIONS

None.

17. REQUIRED CHANGE DATE	18. RATIONALE FOR REQUIRED CHANGE DATE	19. PRIORITY
October 30, 2003	This product has recently been allocated to AWIPS OB2.2, which is scheduled to commence deployment in November 2003.	☐ ROUTINE ☒ URGENT ☐ EMERGENCY

DRG/CCB/PMC/CMB DECISION						
20. DECISION AUTHORITY LEVEL	☐	FAST TRACK	☐	CCB LEVEL ONLY	☐	PMC or NWS CMB DECISION REQUIRED
21. CCB LEVEL DECISION	☐	APPROVED	☐	DISAPPROVED		SIGNATURE
	☐	RECOMMEND APPROVAL				DATE SIGNED
FOR USE ONLY WHEN PMC or NWS CMB DECISION REQUIRED						
22. PMC OR NWS CMB DECISION	☐	APPROVED	☐	DISAPPROVED		SIGNATURE/DATE

NWS CHANGE FORM
PART A - DATA PRODUCTS SUPPLEMENT

	1. ORIGINATOR TRACKING NUMBER

This information is required for Data Products submissions.	2. WSH TRACKING NUMBER	2A. REV LEVEL

3. NODE ID	4. AWIPS ID NNNXXX	5. WMO HEADER	6. ADD REV DEL	7. SEAS Y/N	8. CHAR PER MSG	9. FREQUENCY	10. NWSTG DISTR	NWWS ONLY 11. PRIME UPLINK	 12. B/U UPLINK

Notes: The WMO header assignment notes, below, refer to the generic header template: $T_1T_2A_1A_2ii$.

1. The T_1 values correspond, respectively, to the following:
   Y. Default value
   Z. Value for forecast periods of 54, 66, 78, 90, 102, 114, 126, 138, 150, 162, 174, 186, 198, 210, 222, and 234 Hrs

2. The T_2 values are assigned to the following forecast periods:
   For T_1=Y: A=00, B=06, C=12, D=18, E=24, F=30, G=36, H=42, I=48, J=60, K=72, L=84, M=96, N=108, O=120, P=132, Q=144, R=156, S=168, T=180, U=192, V=204, W=216, X=228, and Y=240 Hrs.
   For T_1=Z: M=54, N=66, T=78, U=90, V=102, W=114, and Z=126, 138, 150, 162, 174, 186, 198, 210, 222, and 234 Hrs.
   *** NOTE: Identical T_1 value for "Z" forecast periods exceeding 120 hours, since Office Note 388 did not cover these. ***

3. The: A_1 values correspond, respectively, to the following seven parameters
   H. Geopotential Height
   T. Temperature
   U. East/West Wind Component
   V. North/South Wind Component
   R. Relative Humidity
   W. CAPE
   Y. CIN

4. The A_2 values are assigned to the following GFS model grid:
   Q = Grid 211

5. The ii values are assigned to the following GFS model levels:
   98 = surface
   86 = all BL (Boundary Layers)
   99 = 1000 mb
   93 = 975 mb
   95 = 950 mb
   92 = 925 mb
   90 = 900 mb
   91 = 875 mb
   85 = 850 mb
   82 = 825 mb
   80 = 800 mb
   77 = 775 mb
   75 = 750 mb
   72 = 725 mb
   70 = 700 mb
   67= 675 mb
   65 = 650 mb
   62 = 625 mb
   60 = 600 mb
   57 = 575 mb
   55 = 550 mb
   52 = 525 mb
   50 = 500 mb
   45 = 450 mb
   40 = 400 mb
   35 = 350 mb
   30 = 300 mb
   25 = 250 mb
   20 = 200 mb
   15 = 150 mb
   10 = 100 mb

FOR METAR CHANGES ONLY	17. INTERNAL NWS USE ONLY	18. PRODUCT SOURCE	19. AWIPS DATA TYPE

13. COMMS ID	14. N. LATITUDE			15. W. LONGITUDE			16. ELEV (M)				
	DEG	MIN	SEC	DEG	MIN	S E		20. NOTIFICATION	A. CHANGE NOTICE NUMBER	B. EFFECTIVE DATE	C. ISSUE DATE
								AWIPS			
								EMWIN			
								NWWS			

NWS CHANGE FORM
PART B - FUNDING AND SUPPORT ACTIVITIES

	1. ORIGINATOR TRACKING NUMBER

All RC/ECP submissions must also address the following information. Attach extra pages if necessary, referencing each applicable subject.	2. WSH TRACKING NUMBER	2A. REV LEVEL

FUNDING INFORMATION	SOURCE OF FUNDING	COST DATA
3A. DEVELOPMENT COSTS	3B.	3C. $
4A. OPERARQONAL TEST AND EVALUARQON COSTS	4B.	4C. $
5A. PRODUCRQON COSTS	5B.	5C. $
6A. COMMUNICARQONS SERVICE/CIRCUITS COSTS	6B.	6C. $
7A. IMPLEMENTARQON SUPPORT COSTS	7B.	7C. $
8A. LIFE CYCLE SUPPORT COSTS	8B.	8C. $
9A. CCB COST EVALUARQON NWS COST $ FAA COST $ DOD COST $ OTHER AGENCY COST $ (SPECIFY)		9B. TOTAL COST $

SUPPORTING INFORMATION AND SCHEDULES

10. DEVELOPMENT STATUS/SCHEDULE	11. PROCUREMENT STATUS/ SCHEDULE
12. IMPLEMENTATION/RETROFIT STATUS/SCHEDULE	13. FACILITY INFORMATION
14. COMMUNICATIONS RESOURCES TO BE INSTALLED	15. COMMUNICARQONS RESOURCES TO BE REMOVED
16. REQUIRED CLEARANCES, WAIVERS, AND LICENSES	17. COORDINARQON OF CHANGE WITH OTHER CHANGES
18. PHYSICAL ITEMS AND DOCUMENTS AFFECTED	19. STAFF RESOURCE IMPACTS
20. LOGISRQCS IMPACTS	21. OPERARQONAL IMPACTS
22. ADDIRQONAL MAJOR CHANGE ACRQVIRQES	

NWS CHANGE FORM
PART B - PHYSICAL ITEM AND DOCUMENT IMPACT MATRIX SUPPLEMENT

1. ORIGINATOR TRACKING NUMBER	
This information is required prior to publication of Engineering Modification Notes and Software Release Notes.	2. WSH TRACKING NUMBER / 2A. REV LEVEL

PART AND SOFTWARE IDENTIFICATION

3. ITEM TYPE: HARDWARE SOFTWARE	4. ITEM NAME AND REFERENCE DESIGNATOR	5. ADD REMOVE REPLACE MODIFY	6. OLD PART OR SOFTWARE VERSION		7. NEW PART OR SOFTWARE VERSION	
			A. PART NUMBER OR SOFTWARE VERSION	B. SERIAL NUMBER OR LOT	A. PART NUMBER OR SOFTWARE VERSION	B. SERIAL NUMBER OR LOT

DOCUMENTATION IDENTIFICATION

8. DOCUMENT TYPE	9. DOCUMENT TITLE	10. ADD REMOVE REPLACE MODIFY	11. OLD DOCUMENT		12. NEW DOCUMENT	
			A. IDENTIFIER	B. REVISION IDENTIFIER	A. IDENTIFIER	B. REVISION IDENTIFIER

NWS CHANGE FORM
PART C - CHANGE AND IMPLEMENTATION ACTIVITIES

	1. ORIGINATOR TRACKING NUMBER	
Submitters should propose implementation actions; WSH will assist with and supplement actions or required statements when necessary.	2. WSH TRACKING NUMBER	2A REV LEVEL

3. IMPLEMENTATION DOCUMENTS REQUIRED

☐ Engineering Modification Note ☐ Software Release Notes ☐ Other Document (Specify)_____

ADDITIONAL IMPLEMENTATION INSTRUCTIONS

4. IMPLEMENTATION ACTIVITY REQUIRED	5. REQUIRED COMPLETION DATE	6. RESPONSIBLE PERSON AND OFFICE	7. DOCUMENT OR ACTION REQUIRED TO VERIFY COMPLETION